

## Nomenclatural remarks on the family-group names of the Phylum Echiura

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*Abstract.*—The spellings, authorships, and dates of publication of all the family-group names of the Phylum Echiura were reexamined critically, following strictly the International Code of Zoological Nomenclature. The following corrections of current usages are noted: Bonelliidae Lacaze-Duthiers, 1858, instead of Baird, 1868; Echiuridae Quatrefages, 1847, instead of Blainville, 1827 (consisting of Echiurinae Quatrefages, 1847 and Thalassetinae Forbes & Goodsir, 1841, instead of Monro, 1927); and Ikedidae Bock, 1942, instead of Ikedaidae Dawydoff, 1959. Furthermore, the spelling of the here unadopted subfamilies Bonellinae, Acanthobonellinae, and Archibonellinae, all of which were originated by DattaGupta (1976), are corrected respectively to Bonellinae, Acanthobonelliinae, and Archibonelliinae. The erroneous attribution of the family name Urechidae to Fisher & MacGinitie (1928) is also corrected to Monro (1927), although the former affiliation has already been entered into the Official List of Family-Group Names in Zoology.

The echiurans constitute an exclusively marine, coelomate phylum, which is generally regarded to consist of four families (Stephen & Edmonds 1972; see Table 1). Among many papers on echiurans, I happened to find some discrepancies in the spellings, authorships, and dates of publication of the family-group names. While inquiring after the correct ones, I found defects not only in my own chapter contributed to a recent book (Nishikawa 1992), but also in many other publications, including the excellent monograph by Stephen & Edmonds (1972).

"Systematics is not simply the activity of collecting data or organisms and interpreting their historical relationships. Systematists must also be historical . . . scholars, . . . at the level of tracing the history of names and in finding and interpreting those data and ideas presented by earlier workers." (Wiley 1981). In the spirit of historical scholarship, I present here my conclusions concerning the above-mentioned inquiries, strictly following the International Code of

Zoological Nomenclature, 3rd edition (abbreviated as ICZN; International Commission on Zoological Nomenclature 1985). When citing earlier works, the original orthography is followed.

### Family Bonelliidae

The family Bonelliidae has been sometimes spelled incorrectly as "Bonellidae" (e.g., DattaGupta 1976, 1981; Saiz Salinas 1987, Nishikawa 1992). Moreover, the authorship of this family has been wrongly attributed to Baird (1868). Lacaze-Duthiers (1858) seems to have been the true author of the family Bonelliidae.

When Lacaze-Duthiers (1858) erected "la famille des Bonellines" based on *Bonellia viridis*, he formally named it "*BONELLIEA*" as the third family of the "Gephyrea", following the families "*ECHIUREA*" and "*SIPUNCULEA*". The family name Bonelliea can be regarded as available (ICZN Art. 11f), but should be corrected to Bonelliidae with the original au-

Table 1.—Recent trends in and my present conclusions concerning the spellings and, when cited, the authorships and dates of the family-group names of the phylum Echiura, as used in several publications since the monograph of Stephen & Edmonds (1972). Ordering of the names follows that adopted in the monograph.

Authors	Family-group names
Stephen & Edmonds (1972)	Bonelliidae Baird, 1868 Echiuridae de Blainville, 1827 Echiurinae Monro, 1927 Thalassematinae Monro, 1927 Urechidae Fisher & MacGinitie, 1928 Ikedaidae Dawydoff, 1959
DattaGupta (1976)	Bonelliidae Baird Bonellinae <sup>a</sup> novo <sup>b</sup> Acanthobonellinae <sup>a</sup> novo Acanthohaminginae novo Archibonellinae <sup>a</sup> novo Echiuridae de Blainville, 1827 Thalassematidae Bock Ochetostomatinae novo Thalassematinae Bock Urechidae Fisher & MacGinitie Ikedaidae Dawydoff
Saiz Salinas <sup>c</sup> (1987)	Bonelliidae Baird, 1868 Echiuridae de Blainville, 1827 Thalassematidae Bock, 1942
Edmonds <sup>c</sup> (1987)	Bonelliidae Echiuridae Ikedaidae
Nishikawa (1992)	Bonelliidae Echiuridae Urechidae Ikedaidae
Nishikawa (present study)	Bonelliidae Lacaze-Duthiers, 1858 Echiuridae Quatrefages, 1847 Echiurinae Quatrefages, 1847 Thalassematinae Forbes & Goodsir, 1841 Urechidae Monro, 1927 Ikedaidae Bock, 1942

<sup>a</sup> Bonellinae should be corrected to Bonelliinae, Acanthobonellinae to Acanthobonelliinae, and Archibonellinae to Archibonelliinae (see the text).

<sup>b</sup> The author of this nominotypical subfamily should be the same as that of the family (ICZN Art. 36a).

<sup>c</sup> The author didn't refer to all the family-group names.

thorship and date (ICZN Art. 11f(ii)). "Bonelli-" is the stem of the generic name *Bonellia*, which was proposed by Rolando (1821) and derived from the surname of his "Collègue et Ami le professeur Bonelli", with the Latin suffix "-a" (ICZN Art. 29b(i)). Later, Quatrefages (1865) erected the family "Bonellea" and Baird (1868) proposed "Bonelliidae", both names being based similarly on the genus *Bonellia*. However, following ICZN Art. 50a, it is ob-

vious that the author and date of the family Bonelliidae should be Lacaze-Duthiers 1858, who first published a latinized version of this name.

DattaGupta (1976) proposed 4 subfamily names within the "Bonellidae", Bonellinae, Acanthobonellinae, Archibonellinae, and Acanthohaminginae, all of which he attributed to himself. Although they are available names, fulfilling the requirements of ICZN Arts. 11 and 13, several corrections seem

necessary for the first three. As the stem of "bonellia" is "bonelli-" as stated above, Bonellinae should be corrected to Bonelliinae, Acanthobonellinae to Acanthobonelliinae, and Archibonellinae to Archibonelliinae; the latter two are attributed again to DattaGupta (1976), but the nominotypical subfamily should be ascribed to Lacaze-Duthiers (1858), the author of the family Bonelliidae (ICZN Art. 36a). On the other hand, the spelling of the subfamily name Acanthohaminginae need not be changed. The name of its type genus *Acanthohamingia* was derived from another genus, *Hamingia*, the origin of which was the Norwegian word "Hamingja, the Fortuna of Northern Mythology" (Daniëlssen & Koren 1881). As *Acanthohamingia* ends "in a word not Greek or Latin", the stem for the family-group name is "that used by the author who establishes a family-group name based on that generic name" (ICZN Art. 29b(ii)). Therefore, DattaGupta's spelling, using the stem "Acanthohaming-", should be treated as the correct original spelling.

#### Family Echiuridae

The family name Echiuridae has been attributed to Blainville 1828 (see Table 1). If this is correct, then the authorship and date of the nominotypical subfamily Echiurinae should be the same, according to the Principle of Coordination (ICZN Art. 36), instead of Monro (1927), as was given by Stephen & Edmonds (1972) (see Table 1). However, it seems quite strange that Blainville's (1828) "origination" of the family-group name should have preceded, rather than followed, the establishment of the genus *Echiurus*, which has been rightly attributed to Guérin-Méneville (1831) (e.g., Monro 1927, Stephen & Edmonds 1972, for details see below). According to ICZN Art. 11f(i)(1), a family-group name must be "based on the generic name then used as valid for a genus contained in that family-group taxon". When Blainville (1828) first used the name of "Fam. VI. Les Échiurides,

*Echiuridea*", he referred only to two genera as its members, "THALASSÈME: *Thalassema*, Gaertner" and "STERNAPSE: *Sternapsis*, Otto". In his description of this family, the former genus contained "Esp. [=The species] La THALASSÈME ECHIURE: *T. echiurus*; *Lumbricus echiurus* . . .", but no further references were made to the word "echiurus" nor to its derivatives, even for a collective group. Therefore, Blainville's "Echiuridea" should be regarded as an unavailable family name, not because of its wrong ending, but because of the lack of typification. This is also true for Lamarck's (1816) "LES ÉCHIURÉES" as the name of "la deuxième famille de nos annelides apodes", containing the genus "THALASSÈME. (*Thalassema*.)". Its description mentioned only the single species "Thalassème échiure. *Thalassema echiura*", but no references were detectable to the type genus of the family name "Échiurées". And in any case, Lamarck's name for the family was not latinized, but was in vernacular French, and does not meet the criteria for availability of such names outlined in Art. 11f(iii).

Guérin-Méneville's (1831) origination of the generic name *Echiurus* (see below) was clearly affected by Cuvier's (1830) system. This is plain from Guérin-Méneville's text explanation of plate 6 in page 9 of the "Zoo-phytes" section included in volume 3 of his "Iconographie du Règne Animal de G. Cuvier"; the publication year of the "livraison" including the mentioned explanation may be 1842, 1843, or 1844, because the publication of the volume was permitted by the "Académie" on the 21st of November, 1842 (see its "avis") and because the execution of this publication was recorded in No. 36 of the "XXIII<sup>e</sup> Année" volume of the "Bibliographie de la France", dated the 7th of September, 1844. Cuvier's system divided *Thalassema* into "LES THALASSÈMES proprement dits.", "LES ECHIURES", and "LES STERNAPSIS. Otto.". Although Cuvier's "LES ECHIURES" was accompanied by a diagnosis, mentioning only the single spe-

cies *Lumbricus echiurus* Pallas, it should not be regarded as an available genus-group name because it was obviously used as a French vernacular name, rather than "a scientific name by the author when published" (ICZN Art. 11b).

The genus-group name *Echiurus* was originated by Guérin-Méneville (1831) in the explanation of figure 3 of his plate 6, printed below the plate as follows: "Echiurus Pallasii Nob. (L. [=Lumbricus] Echiurus, Gm. Pallas)" (brackets mine); "Nob." is an abbreviation of the latin "nobis" (=ours). The genus-group name *Echiurus* and the specific name *pallasii* are safely regarded as available by indication, because they were newly proposed "in association with an illustration of the taxon being named" (ICZN Art. 12b(7)). The mentioned explanation below the plate is nearly the same as that given in the work's main text published in 1842 or later (see above). The text's explanation was followed by a note stating that the author was obliged to give the earlier name [=L. *echiurus*] a new name [=E. *pallasii*], because "il était impossible de l'appeler *Echiurus echiurus* Pallas". Of course, the ICZN (Art. 18) does currently allow tautonymous names. This note clearly shows that *Echiurus pallasii* was first published as an unjustified replacement name for *Echiurus echiurus* (Pallas). The specific name *pallasii* is available (ICZN Arts. 12b(3) and 10g), though not valid.

The type species of the subgenus *Echiurus* is *Lumbricus echiurus* Pallas, 1766, fixed by monotypy (ICZN Art. 68d), as has been generally accepted by Spengel (1912), Monro (1927), Fisher (1946), Stephen & Edmonds (1972), etc. Lastly, by the Principle of Coordination (ICZN Art. 43), the authorship, date, and type species of the genus *Echiurus* are quite the same as those for the nominal subgenus.

So far as I am aware, Quatrefages (1847) was the first to use the family name "Echiurea" expressly based on the genus name *Echiurus*. When he proposed this family

name to denote one of "les deux familles établies par M. de Blainville" (see above), the family contained the genera "Echiure" and "Sternapse". Undoubtedly, "Echiure" was used here as a vernacular name for the genus *Echiurus*, because he also wrote "ECHIURE DE GAERTNER (*ECHIURUS GAERTNERII* . . .)". From context, then, *Echiurus* can be recognized as the base of the family name and so the latter is available from this publication (ICZN Art. 11f(i, 1)). The stem of *Echiurus* is "Echiur-", so the original incorrect spelling of "Echiurea" should be corrected to Echiuridae, though still attributed to Quatrefages 1847 (ICZN Art. 33b(ii)), not to Baird (1868), who first spelled it that way. Lacaze-Duthiers' (1858) family name "*ECHIUREA*" and Skorikov's (1909) subfamily name "Echiurini" are incorrect subsequent spellings of this family-group name (ICZN Art. 33c). According to the Principle of Coordination (ICZN Art. 36), the nominotypical subfamily name Echiurinae also should be attributed to Quatrefages, 1847.

The other subfamily, Thalassematinae, or the family Thalassematidae in another system, has sometimes been attributed incorrectly to Monro (1927) or Bock (1942) (see Table 1). However, the authorship of this family-group name should be corrected to Forbes & Goodsir (1841), who first used the name as "... *Thalassema Neptuni* and *Echiurus vulgaris*, members of the family *Thalassemataceae* in the order *Sipunculidae*". As the family name Thalassemataceae is obviously based on the then valid genus name *Thalassema* Pallas, 1774 (see below), it is available, though regarded as an incorrect original spelling (ICZN Art. 32c(iii)). Although Forbes (1841) also used this family name in quite the same sense as Forbes & Goodsir (1841), I give precedence to the latter as follows.

Forbes & Goodsir's (1841) paper was published in April, as shown on the cover of the issue in which it appeared (Reference Service of the University of Tokyo Library, pers. comm.). And it seems that Forbes'

(1841) book appeared at the latest in April, because it was included in the "List of new publications, from January to April 1841" of "The Edinburgh Review" vol. 73, no. 147, which was published in April, 1841. Further information has not yet become available as to the publication date of either work. Therefore, Forbes & Goodsir (1841) and Forbes (1841) are both deemed to have been published on the last day of April, 1841 (ICZN Art. 21c(i)). Under these circumstances, I give precedence to Forbes & Goodsir (1841) over Forbes (1841), following the "Principle of the First Reviser" (ICZN Art. 24a).

The generic name *Thalassema* has been incorrectly attributed to Lamarck (1801) (e.g., see Stephen & Edmonds 1972), and even to Cuvier (date unspecified). However, the authorship of the name should be changed to Pallas (1774).

When Pallas (1774) originated the name of the species "LUMBRICUS THALASSEMA", he mentioned the manuscript name "*Thalassema Neptuni*" proposed for the same species by Gaertner, who had discovered it. The generic name *Thalassema*, published there as a junior synonym of *Lumbricus*, is available, because prior to 1961 it was used as an available name (see ICZN Art. 11e and its example), as seen in many older papers (e.g., Blainville 1828, see p. 251). The genus *Thalassema* is credited to Pallas, 1774, and its type species is *Lumbricus thalassema* by monotypy, because it is the only species with which *Thalassema* was firstly associated (see ICZN Art 67l).

Lamarck's (1801) *Thalassema* is undoubtedly available, because it was accompanied by a clear definition. However, the genus-group name *Thalassema* is clearly attributed to Pallas, 1774, not to Lamarck, 1801, by the Principle of Priority. This name was once often ascribed to Cuvier, e.g., by Lamarck (1801) who wrote, "THALASSÈME, *Thalassema*. Cuv.". Stephen & Edmonds (1972) tried "to find in any of the books at our disposal Cuvier's pre-1801 citation of *Thalassema*", but in vain. For-

tunately, however, I could find that Cuvier (1800) listed "Thalassèmes ... *Thalassema*" in the table titled "Classification des vers" without any associated nominal species, and that Cuvier (1805) used the former vernacular name as "les thalassèmes (*lumbricus thalassema* et *echiurus*)". These works of Cuvier were based on his pre-1801 "course on comparative anatomy, delivered at the Muséum national d'histoire naturelle" (Smith 1993). Therefore, Lamarck's (1801) above-stated credit of Cuvier for the generic name obviously derived from the course itself and/or its transcripts. At any rate, Cuvier's (1800) generic name *Thalassema* is unavailable, because it was unaccompanied "by a description or a definition of the taxon that it denotes, or by an indication" (ICZN Art. 12a).

The stem of *Thalassema* when forming a family name can be confirmed clearly as follows. Pallas (1774) wrote, "DESCRIP-TIO LUMBRICI THALASSEMATIS" in the original description of *Lumbricus thalassema*, now called *Thalassema thalassema* (Pallas 1774). This means that *Thalassema* can be regarded as a neuter noun in the 3rd declension (S. Ootsuki, pers. comm.), and it confirms that the stem of *Thalassema* is "Thalassemat-". The family name should therefore be corrected to Thalassematidae Forbes & Goodsir, 1841, with the original authorship and date unchanged (ICZN Art. 33b(ii)). Furthermore, following the Principle of Coordination (ICZN Art. 36a), the subfamily Thalassematinae also should be attributed to Forbes & Goodsir 1841 (see Table 1). Later, Monro (1927) erected a subfamily Thalassematinae in the family Echiuridae, and Bock (1942) proposed a "Family Thalassematidae, nov." and "Subfamily Thalassematinae, nov.". However, neither Monro nor Bock can be regarded as the author of this family group (ICZN Art. 50). Dawydoff's (1959) "Thalassemidae" is an incorrect subsequent spelling of the valid family name Thalassematidae, and is thus regarded as unavailable (ICZN Art. 33c).

DattaGupta (1976) proposed a new available subfamily name, *Ochetostomatinae*. This is the original correct spelling, although this subfamily name is not used here. The type genus *Ochetostoma* is a neuter noun in the 3rd declension, with the stem of "Ochetostomat-".

#### Family Urechidae

The family-group name *Urechidae* Fisher & MacGinitie, 1928 has been entered into the Official List of Family-Group Names in Zoology as the result of Opinion Number 941, published in 1971 (see Bulletin of Zoological Nomenclature, 27: 216-217). However, I found that Monro (1927) erected the "Subfamily Urechinae" of the "Family Echiuridae", clearly prior to Fisher & MacGinitie (1928). Monro's (1927) *Urechinae* is available, because it was based on the valid name *Urechis* Seiz, 1907 and accompanied by a description, thus fulfilling the other requirements of ICZN Arts. 11 and 12. Then, the family name *Urechidae* is also credited to Monro 1927 by the Principle of Coordination (ICZN Art. 36a), not to Fisher & MacGinitie 1928. I intend to ask the International Commission on Zoological Nomenclature to change the authorship in the Official List. Nishikawa (1992) published the obviously incorrect subsequent spelling "Urechidae".

#### Family Ikedidae

*Ikedidae* Dawydoff, 1959, although generally accepted by most recent users including Nishikawa (1992), is actually wrong in spelling, authorship, and date.

The type genus *Ikeda* was proposed by Wharton (1913) on the basis of *Thalassema taenioides* Ikeda. The generic name *Ikeda* was derived wholly from the surname of a Japanese taxonomist, the late Prof. Iwaji Ikeda, who was the author of the type species. The stem of the family-group name based on the generic name *Ikeda*, which "is or ends in a word not Greek or Latin", is "that used by the author who established a

family-group name based on that generic name" (ICZN Art. 29b(ii)). Bock (1942) first erected the "Sub-family *Ikedinae*" based on the genus *Ikeda*, with the stem "Iked-". Following the Principle of Coordination (ICZN Art. 36a), the family name *Ikedidae* should be considered the correct original spelling and attributed to Bock (1942). Dawydoff's (1959) "*Ikedidae*" is an incorrect subsequent spelling of the valid family name *Ikedidae*, and therefore regarded as unavailable (ICZN Art. 33c).

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